# United States Patent [19]

**Hartley**

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[54] **BURGLAR ALARM FOR USE WITH AN AUTOMATIC GARAGE DOOR OPENER**


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[51] **Int. Cl.**[2] ..... **H04B 7/00**

[52] **U.S. Cl.** ..... **343/225**; 340/224; 340/164 A

[58] **Field of Search** ..... 343/225; 340/224, 220, 340/164 A, 310 R



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[57] **ABSTRACT**

A burglar alarm generator is electrically connected to a conventional remote control automatic garage door opener to provide a visual and/or audible signal to deter potential burglars from the residence. The alarm generator (such as a siren or the like capable of providing a loud noise) is activated on command from a remote control transmitter typically used with automatic garage door openers. Circuitry within the alarm generator provides the capability to electrically bypass the alarm for operation of the opener in its normal mode. The alarm generator is capable of being energized and activated from within the residence.


**9 Claims, 2 Drawing Figures**

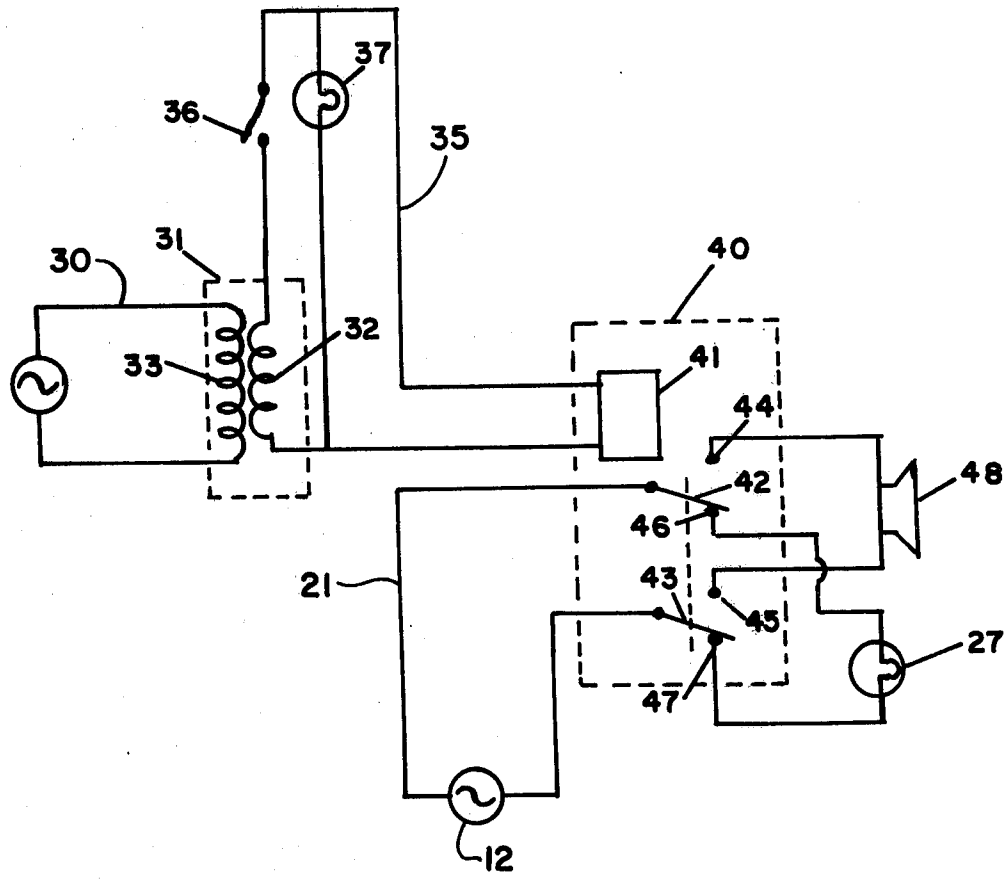


FIG 1

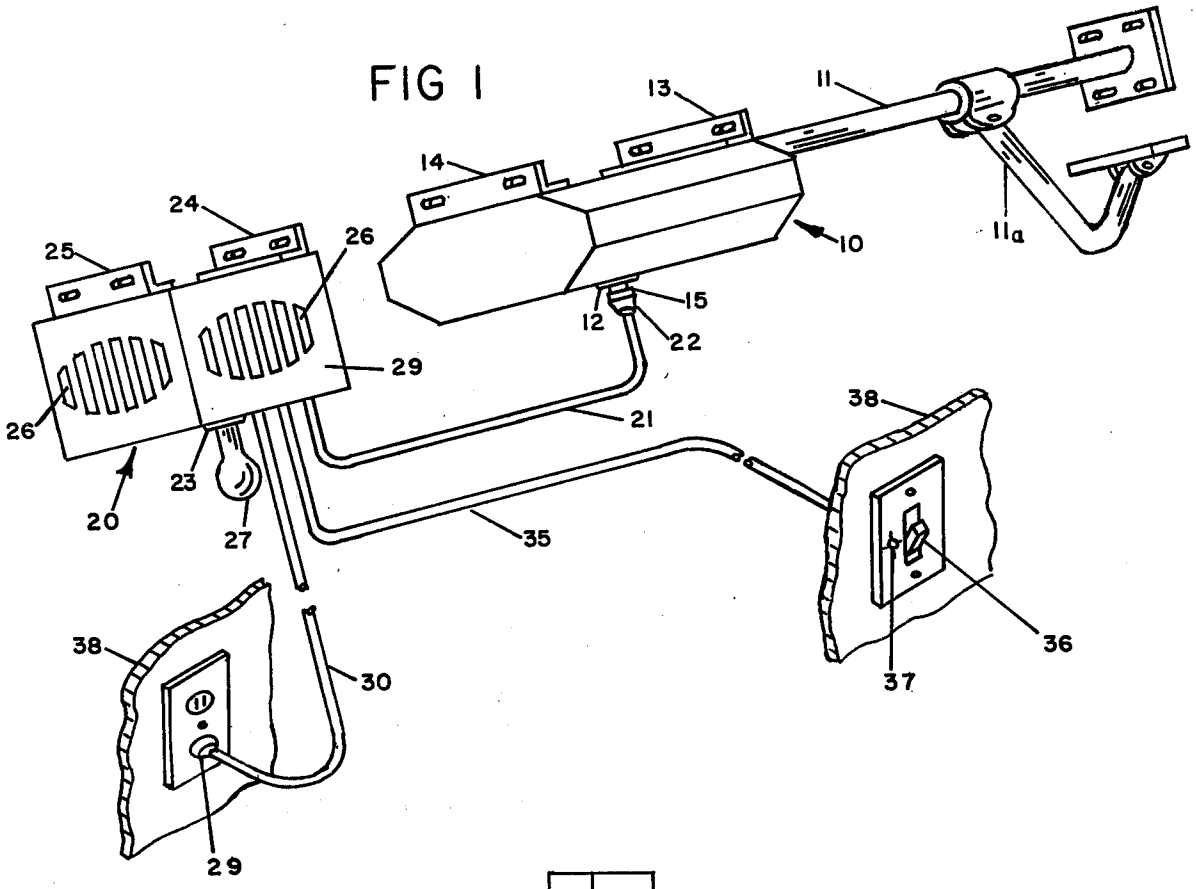
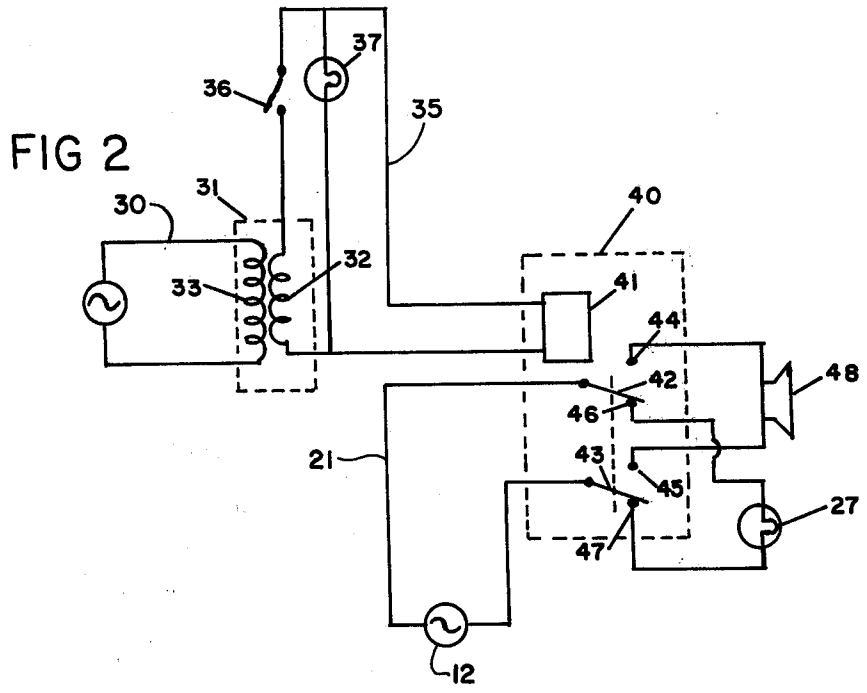

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FIG 2


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# BURGLAR ALARM FOR USE WITH AN AUTOMATIC GARAGE DOOR OPENER

## BACKGROUND OF THE INVENTION

The present invention relates to the field of burglar alarms and more specifically to a device, which, when attached to a standard automatic garage door opener, will, when energized, produce a siren alarm system to deter potential burglars.

Burglar alarms, which employ an electrically energized circuit, have become very popular in residential sections to signal to the police, private agencies and the like, that a particular residence has been broken into. The alarm systems also act as a deterrent such that when the alarm is activated. it will frighten the burglar or potential burglar and he will abandon his intent of burglarizing the residence. Normally, the alarm systems produce either an audible or visual signal, or turn on lights or the like when activated by some means. Systems of this type are usually expensive to purchase, install, and maintain and frequently are unreliable in operation. Also, the alarm systems usually require the installation of an independent energizing mechanism which become activated upon unauthorized intrusion into the premises.

It is the general purpose of this invention to provide a simple, inexpensive burglar alarm system which can be connected to a conventional radio controlled garage door opener by simply removing the light bulb in the automatic garage door opener and plugging the invention in to the light bulb socket. In normal operation, the electrical current which energizes the light bulb, now energizes and activates the burglar deterrent alarm.

## SUMMARY OF THE INVENTION

A preferred embodiment of the present invention which will be subsequently described in greater detail, is described for an alarm system and has reference to a conventional automatic garage door opener having a radio control means of activation. Many buildings have a radio controlled garage door opener which turns on a light as the door opens. This invention substitutes an alarm generator for the light bulb. When the present invention is plugged into the automatic garage door opener light bulb socket and the alarm generator is not energized, the automatic garage door opener will operate in the conventional manner with the exception that the garage will be illuminated by a light bulb contained in the burglar deterrent alarm unit. When the garage door opens, the light bulb will be activated for the same period of time that the light bulb on the conventional door opener would have been activated. Thus when the alarm service is not desired, the usual function of the garage door opener passes through the invention and the garage door operates in the normal manner.

When the alarm system is desired, the home owner energizes the alarm system with a switch means preferably located at some convenient place within the house. Switch means could be located at several convenient positions throughout the building, any of which could energize the alarm system. A relay in the invention, when energized, inserts the alarm generator into the active circuit which produces a loud noise when the garage door opens. The loud noise coupled with the lighted garage should then frighten away any intruders.

The occupant of the building activates the garage door by the use of a remotely operated garage door opener transmitter which is supplied with the usual automatic garage door opener.



It is, therefore, an object of this invention to provide a relatively inexpensive electrically activated burglar deterrent alarm system.

Another object of the invention is to provide a burglar alarm which can be readily connected to commercially available automatic garage door openers.

Another object of the invention is to provide a burglar alarm system which can be energized by a switch means inside the building and activated by a remote garage door opener means from any location within the building.

Another object of the invention is to provide a burglar deterrent alarm system which produces an audible signal to deter potential burglars.

Another object of the invention is to provide a burglar deterrent alarm system which produces an audible and visual signal to deter potential burglars.

These, together with other objects, features and advantages of the present invention, will be more readily understood from the following detailed description, when taken in connection with the accompanying drawings wherein:

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a view of the preferred burglar deterrent alarm system connected to an automatic garage door opener.

FIG. **2** is a view of the electrical schematic of the burglar deterrent alarm system.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, and, more particularly, to FIG. **1**, which shows a perspective view of the burglar deterrent alarm with which the present invention is concerned, and its connection to a conventional automatic garage door opener. The automatic garage door opener contains a first engaging arm **11** attached to one end to the motor box **10** and having its second end attached to the garage door header (not shown). A second engaging arm **11***a* is slidably attached at one end to the first engaging arm **11** and its second end is fixedly attached to the garage door (not shown). When the garage door opener is activated, the second engaging arm **11***a* slides along the first engaging arm **1** which opens the garage door (not shown.) The motor box **10** contains a motor, drive mechanism, radio receiver and activating circuitry (all not shown) found in conventional automatic garage door opener devices. Mounting attachments **13** and **14** are provided to secure the door opener to the rafter of the garage.

When a signal from a remote radio control transmitter (not shown) is received at the receiver in the motor box **10**, the electrical circuit is energized and the second engaging arm **11***a* opens the garage door. Simultaneously, electrical power is supplied to the light bulb socket **12**. Normally, the conventional automatic garage door opener would contain a light bulb in the light bulb socket **12** which would be illuminated while the light circuit is energized. In the present invention, a light socket adapter **15** is inserted into the light bulb socket **12**. An electrical cable **21**, having a conventional plug **22** at one end, is inserted into the light socket adapter **15** and has its second end connected to the activating circuit within the burglar deterrent alarm housing **20**. The housing **20** would usually be rectangular in shape but

could be of any convenient shape and of a size sufficient to hold all the components of the invention.

The burglar deterrent alarm housing **20** will usually be located in close proximity to the motor box **10** and connected to the garage rafters using the mounting attachments **24** and **25**. The burglar deterrent alarm housing **20** could also be mounted on any interior wall of the garage, or within the house. It could also be housed in a tamper-proof protected steel cabinet mounted on any exterior wall or on the roof. Connected to the activating circuit would be an alarm generator (not shown in FIG. **1**) and a light socket **23** into which a light bulb **27** has been inserted. Elongated slots **26** in the housing walls **29** transmit the sound produced by the alarm generator (not shown) inside the housing **20**. Electrical cable **30** is plugged at one end into any convenient 110 volt house outlet **29**, preferably in close proximity to the burglar deterrent alarm. The second end of the electrical cable **30** is connected to the electrical circuit of the burglar deterrent alarm system as shown schematically in FIG. **2**. Electrical cable **35** terminates at one end with a switch means **36** which is usually positioned at some convenient location on a wall **38** within the house. Switch means **36**, when closed, energizes the burglar deterrent alarm system which, when activated by the opening of the garage door, produces the siren noise to deter a potential burglar. Associated with the switch means would be a visual lamp **37** which is energized when the switch is closed.

FIG. **2** shows a preferred circuit for the burglar deterrent alarm. A 110/24 volt transformer **31** is connected to a 110 volt A.C. source by electrical cable **30** as shown in FIG. **1**. This voltage source would normally be located in close proximity to the burglar deterrent alarm. However, close proximity of the electrical outlet is not necessary since the burglar deterrent electrical cord **30** could be of any length. Furthermore, an extension cord, not shown, could also be utilized. The windings of the transformer's secondary coil **32** are such that 24 volts will be impressed across it when 110 volts are impressed across the primary coil **33**. This switch would normally be located on a wall **38** in FIG. **1** on the inside portion of the building. When the occupant of the building closes the switch **36**, the alarm generator is then energized. As noted previously, this switch could be placed on any convenient wall in the building. A slight modification to the switch circuit would allow multiple switch locations throughout the building, anyone of which would energized the burglar deterrent alarm system. A 24 volt visual lamp **37** is connected across the **24** volt secondary coil **32** and the switch **36**. When the switch is in the open position, no current flows through the visual lamp. When the switch **36** is closed, the visual lamp **37** is activated and gives a visual signal to the occupant of the building, that the burglar deterrent alarm system is energized.

The use of a 24 volt circuit for the switch minimizes the electrical potential in the circuit which minimizes the problems of installation by the homeowner.

The secondary coil **32** is connected through the switch **36** to a 24 volt double pole throw relay **40**. When the switch **36** is open, the relay coil **41** is not activated and the 110 volt signal from the electric light bulb socket **12** in FIG. **1** passes through the armatures **42** and **43**, through the non-activated contact positions **46** and **47** and energizes the light bulb **27**. Light bulb **27** will be activated as long as light bulb socket **12** is energized.

When switch **36** is closed, a 24 volt signal is impressed on relay coil **41** and armatures **42** and **43** make contact with positions **44** and **45** respectively. When electric light bulb socket **12** is energized, alarm generator **48** such as a siren is also energized and produces a loud noise to deter potential burglars. In the preferred illustration, the alarm generator **48** will only be activated for the period of time the electric light bulb socket **12** in the automatic garage door opener is energized.

It is to be recognized that modifications to the electrical circuit can be made in that the alarm generator could be powered by a separate source of electrical current which is activated when the electric light bulb socket **12** is energized and switch **36** is closed. The alarm generator would then remain activated until the switch **36** is opened.

Also, in the preferred embodiment, the electric light **27** is energized only when the alarm generator circuit is not energized. Thus the light bulb is energized when the automatic garage door opener is operating in the normal manner. When the alarm generator circuit is activated, the light bulb **27** circuit is deactivated. It is to be recognized that modifications to the circuitry can be made to have the light bulb circuit activated in both modes of operation.

It can therefore be seen that in accordance with the present invention, there is provided a burglar deterrent alarm which can be readily attached to a conventional automatic garage door opener to provide an economical, easy to install and reliable burglar deterrent alarm system to frighten actual or potential burglars from a residence or building.

While the invention has been described with respect to a preferred physical embodiment, constructed in accordance therewith, it will be apparent to those skilled in the art that various modifications and improvements may be made without departing from the scope and spirit of the invention. Accordingly, it is to be understood that the invention is not to be limited by the specific illustrative embodiment, but only by the scope of the appended claims.

What is claimed is:

**1**. A burglar alarm for use in combination with an automatic garage door opener comprising:

a housing,

an alarm generator within the housing.

means for energizing the alarm generator whereby the alarm generator is capable of being activated by a signal from the automatic garage door opener, and

means for communicating the signal from the automatic garage door opener to activate the energized alarm generator.

**2**. A burglar alarm as set forth in claim **1** wherein the means for energizing the alarm generator comprises:

means for inserting the alarm generator into a circuit, and

switch means within the circuit for energizing the means for inserting the alarm generator into a circuit.

**3**. A burglar alarm as set forth in claim **2** wherein the switch means comprises:

a transformer having a primary coil and a secondary coil capable of transforming the voltage across the primary coil from a 110 volt a.c. source to at least 24 volts across the secondary coil,

a switch having an open and closed position and capable of cooperating with the transformer for energizing the alarm generator, and

a visual lamp capable of being energized when the switch is closed to provide a visual indication that the alarm generator is energized.

4. A burglar alarm as set forth in claim 1 wherein the alarm generator is a siren.

5. The invention in accordance with claim 2 wherein the means for inserting the alarm generator into a circuit is a double pole double throw relay.

6. The invention in accordance with claim 1 wherein the means for communicating the signal from the automatic garage door opener to activate the energized alarm generator is a cable having a plug on one end capable of being inserted into a light bulb socket in the automatic garage door opener and connected at the other end to the alarm generator.

7. A burglar alarm for use in combination with an automatic garage door opener comprising:

a housing,

an alarm generator,

a light socket within the housing capable of receiving a light bulb,

a relay having armatures capable of moving from a first position for electrical connection to the alarm generator to a second position for electrical connection to the light socket,

means for energizing the relay to move the armatures between the first position and the second position, and means for communicating the signal from the automatic garage door opener to the armatures for activating the alarm generator when the armatures are in the first position and for energizing the light socket to turn on a light bulb when the armatures are in the second position.

8. The invention in accordance with claim 7 wherein the means for energizing the relay comprises:

a source of a.c. voltage,

a transformer connected to the source of voltage having a primary coil and a secondary coil capable of transforming the voltage across the primary coil to at least twenty four volt across the secondary coil, and

a switch having an open and closed position and capable of cooperating with the transformer to energize the relay when the switch is in the closed position.

9. The invention in accordance with claim 8 wherein the means for communicating the signal from the automatic garage door opener to the armature is a cable having a plug on one end for insertion into the automatic garage door opener and electrically connected at the other end to the armatures.

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